WHAT IS CLAIMED, IS:

1. Method for pipeline processing a chain of processing in-
   structions, including the step:
5 - processing said instructions in a chain of succeeding
     pipeline stages, wherein partial or intermediate first
     pipeline processing operands or results are intermedi-
     ately or permanently stored in a operand/result store,
     e.g. in a register file, for further access at the appro-
10   priate time instant or instants by one or more of said
      pipeline stages,
      and wherein partial or intermediate second pipeline proc-
      essing operands or results available in one or more of
      said pipeline stages are accessed by one or more other
15   ones of said pipeline stages at the appropriate time in-
      stant or instants without access to said operand/result
      store,
      and wherein a scoreboard is used in which information is
      stored about the presence or absence of specific ones of
20   said partial or intermediate first pipeline processing
      operands or results required by subsequent pipeline proc-
      essing,
      and wherein in said scoreboard data are stored and up-
      dated about in which one or ones of said pipeline stages
25   a currently required operand or result, or currently re-
      quired operands or results, is - or are - located avail-
      able for use in one or more other ones of said pipeline
      stages,
      and in that in said scoreboard, data are stored and up-
30   dated about the type of instruction that is related to
      said currently required operand or result, or currently
      required operands or results,
      wherein said one or more other ones of said pipeline
      stages makes - or make - use of said data about location
35   and said data about instruction type for accessing di-
      rectly said currently required operand or result, or cur-

rently required operands or results, without need to access data stored in said operand/result store.

2. Method according to claim 1, wherein said scoreboard contains an individual incrementer for each address of a register in said operand/result store.

3. Method according to claim 2, wherein the first one of said pipeline stages writes a zero value at the address of a destination register in said scoreboard upon a processing instruction entering said first pipeline stage, and all stage counters related to processing instructions that had previously entered said first pipeline stage are incremented every new cycle if the corresponding pipeline stages are not stalled, such that the current pipeline stage counting number is kept up-to-date, and wherein, upon a processed processing instruction leaving the last pipeline stage of said chain of pipeline stages, said pipeline stage counting number is set to an end value that is no more incremented.

4. Method according to claim 1 or 2, wherein said chain of pipeline stages, except said first and the last pipeline stage, feed partial or intermediate second pipeline processing operands or results available in one or more of said pipeline stages to a common bus from which said partial or intermediate second pipeline processing operands or results can be accessed by one or more other ones of said pipeline stages at the appropriate time instant or instants without access to said operand/result store.

5. Apparatus for pipeline processing a chain of processing instructions, and including:
- an operand/result store;
- a chain of succeeding pipeline stages, wherein said instructions are processed, whereby partial or intermediate

first pipeline processing operands or results are inter-
mediately or permanently stored in said operand/result
store, e.g. in a register file, for further access at the
appropriate time instant or instants by one or more of
said pipeline stages,
and wherein partial or intermediate second pipeline proc-
essing operands or results available in one or more of
said pipeline stages are accessed by one or more other
ones of said pipeline stages at the appropriate time in-
stant or instants without access to said operand/result
store;
- a scoreboard wherein data are stored and updated about in
which one or ones of said pipeline stages a currently re-
quired operand or result, or currently required operands
or results, is - or are - located available for use in
one or more other ones of said pipeline stages,
and wherein data are stored and updated about the type of
instruction that is related to said currently required
operand or result, or currently required operands or re-
sults,
and wherein said one or more other ones of said pipeline
stages use of said data about location and said data
about instruction type for accessing directly said cur-
rently required operand or result, or currently required
operands or results, without need to access data stored
in said operand/result store.

6. Apparatus according to claim 5, wherein said scoreboard
   contains an individual incrementer for each address of a
   register in said operand/result store.

7. Method or apparatus according to claim 6, wherein the
   first one of said pipeline stages writes a zero value at
   the address of a destination register in said scoreboard
   upon a processing instruction entering said first pipe-
   line stage, and all stage counters related to processing

instructions that had previously entered said first pipe-
line stage are incremented every new cycle if the corre-
sponding pipeline stages are not stalled, such that the
current pipeline stage counting number is kept up-to-
5   date, and wherein, upon a processed processing instruc-
tion leaving the last pipeline stage of said chain of
pipeline stages, said pipeline stage counting number is
set to an end value that is no more incremented.

10 8. Method or apparatus according to claim 5 or 6, wherein
said chain of pipeline stages, except said first and the
last pipeline stage, feed partial or intermediate second
pipeline processing operands or results available in one
or more of said pipeline stages to a common bus from
15   which said partial or intermediate second pipeline proc-
essing operands or results can be accessed by one or more
other ones of said pipeline stages at the appropriate
time instant or instants without access to said oper-
and/result store.

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